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ABSTRACT

By 2000 A.D. there is a great potential for progressive impoverishment of world resources and degradation of the global environment. This adaptation of the report "Global Future: Time to Act", summarizes a reconnaisance of the future as it might be if no preventative measures are taken. As the world becomes more crowded, polluted, vulnerable to military and economic disruption, and less ecologically stable, the world's renewable resources are threatened as well. All countries must work together to retain the productivity of earth systems (air, water, forest and land), and in the face of growing population pressures and short term economic expediency. American and other nations should take actions to counteract problems which are now multiplying and accelerating in pace and scale. In order to protect its own domestic and international interest, conserve its complex resource base, and strengthen world political stability, the United States should employ it's wealth and technical know-how. It should commit itself to the goals of aiding Third World economic development, focussing on the excision of extreme poverty and sustainable economic development. Further, the American government must be modified to be more effective and flexible in anticipating, evaluating, and coordinating responses to these critical situations. The appendix includes the report's list of world problems and its recommendations for their solution. (AM)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

YEAR 2000--A GLOBAL REPORT.**

By:

Boris Blai, Jr.

1981

**Adapted and abstracted from "Global Future: Time to Act" (Report to the President on Global Resources, Environment and Population). January 1981. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

SO 013 557

THE GLOBAL CHALLENGE

What are the probable changes in world population, resources and environment through the end of this century? In brief, if present trends and policies continue, there is a high potential for the progressive imporvement of world resources and degradation of the global environment. Unless nations of the world take prompt, decisive action to alter present trends, the remaining time to the year 2000 may see:

1-a decline in the earth's capacity to support life while rapide growth continues.

2-a steady loss of croplands, fisheries, forests, pland and animal species, and

3-degradation of the earth's water and atmosphere.

This document is a report of..."only the beginning of a process the United States and other countries across the globe must engage in over the next few years. We must change the way in which we address and resolve long-range global problems, issues of critical importance to our common future." (The final report upon which this document is based was written by Nicholas C. Yost, on leave from his post as Counsel of the U.S. Council on Environmental Quality (CEQ); Kristine L. Hall - Department of Justice; R. Michael Wright - CEQ, and staff from CEQ and the Department of State who performed the indespensable tasks of eliciting contributions from hundreds of public and private sources, sifting and pulling together the recommendations, and writing this report. The editor-in-chief was Katherine Gillman of CEQ).

The information which follows may be..."described as a reconnaisan ce of the future. It describes what might be, if action is not taken. It is within the power of this country, working with other countries, to alter the future.

The resources exist. The solution can be found. The will to act must be summoned."

In general, the recommendations in the following discussion are initial steps only -"the first increments in what needs to be done, efforts which must be duplicated, repeated, and expanded upon many times over by other nations and international organizations, by private institutions, by businesses, and by industries."

To meet the challengence and alter present trends, Americans, as well as citizens of other nations throughout the world, must make commitments now - and stick to them! GLobal population, resources, and environmental problems will not be solved soon, or even in 10 or 20 years. Yet it is imperative to act promptly, to begin to bring these problems down to manageable size.

There is no question whatsoever that the problems become more difficult to resolve with each succeeding year of inaction. The opportunity, for example, to stabilize the world's population below 10 billion is slipping away. The longer it takes the world to reach replacement fertility levels, the greater the ultimately stabilized world population will probably be.

"Provided we manage the earth's resources wisely, future generations will not be faced with a crisis in which our planet will cease to support the number of people living on it. But that spector is now visable. To restore and protect the earth as an ecologically and politically stable habitat for the human race may be the most serious task (underlining added) of the last 20 years of this century.

To each of the findings and conclusions noted in the following paragraphs... "there is an important caveat: these describe what may be expected if present trends continue. They are not predicts of what will occur, but projections of what could occur if the nations and people of this world do not respone to them".

Throughtout the past 10 years, a number of reports - from the United Nations, the World Bank, the International Union for the Conservation of Nature and Natural Resources, the Worldwatch Institute, and many others, have sounded a

persistent warning:

1-Currently, severe stresses on the earth's resources and environment are evident.

2-The staggering growth of human population; the persistence of human poverty and misery; the ever increasing human demands and the possibilities of further stress and permanent damage to the palnet's resource base are very real!

3-To reverse the present trends; to restore and protect the earth's capacity to support life and meet human needs is a challenge of enormous magnitude.

The most recent of these warnings was issued in July 1980 by the U.S. Council on Environmental Quality and the State Department in The Global Report to the President. "The report presents a collection of considered assessments and new ideas for actions the United States could take, in concert with other nations, for a vigorous response to urgent global problems...

"This report is only the beginning of a process the United States and other countries across the globe must engage in over the next few years. We must change the way in which we address and resolve long-range global problems, issues of critical importance to our common future."

The report's projections are based on the assumption that the policies of governments and private corporations stays much as they are today; that technological advice continues at the same rate as in recent years, with no revolutionary breakthroughs; and that major wars and other catastrophies do not intervene.

The Global 2000 Report depicts, by the end of the century, a world:

1-More crowded.

2-More polluted.

3-Less stable ecologically.

4-More vulnerable to disruption than the world we live in now.

5-Population increase from 4 to 6.35 billion in just 25 years.

6-With the GPA between rich and poor nations widening.

7-Per capita food consumption rising somewhat worldwide - but not improving materially in the poor countries of South Asia and the Middle East.

8-Per capita food consumption declining disasterously in sub-Saharin Africa.

9-A world in which the cost of food would rise, <u>everywhere</u>.

10-In which the real cost of fuels would rise, <u>everywhere</u>.

11-In which fuelwood would fall far short of need with as much as 40% of the world's remaining tropical forests being lost.

12-In which many currently productive greaslands and croplands would turn to to desert-like conditions; and

13-In which as many as 20% of plant and animal species now inhabiting the earth would be extince.

The <u>Report</u> further notes;

14-The burning of fossil fuels is already causing damaging, increasing acidity of rain and snowfall, and is also raising the concentration of carbon dioxide in the earth's atmosphere.

15-Continued into the next century, these rising CO_2 levels could cause a warming of the earth sufficient to alter substantially the world climate - with possible serious distruption of human activities, expecially agriculture.

What this report and other recent reports..."do emphasize in a new way are the <u>accelerating pace and scale</u> of the problems and their interrelationships - the web of causes and effects that bind them together." Another fresh insight to be found in this report is..."the degree to which the earth's renewable resources are under threat."

Equally important,..."the recent reports tell us, is to maintain the productivity of the earth's systems - the air, the water, the forest, the land - that yield food, shelter, and the other necessities of live. These resources are renewable <u>if</u> they are kept in a condition of health. BUt they are susceptible to disryption, contamination and destruction." For example;..."in some areas, such as sub* Saharan Africa, a vicious cycle of poverty, accelerating population growth, and erosion of the resources base is vivable. Here, the earth's capacity to support life is being seriously damaged by the efforts of present populations to meet desperate immediate needs, and the damage threatens to become worst. People who

have no other choice for getting their living plant crops on poor soils that will soon wash away, graze their stock on land that is turning to desert from overuse, cut trees that are needed to stabilize soils and water supplies, burn dung needed to fertilize and condition agricultural soils.

"According to the World Bank, some 800 million people today are trapped in conditions of 'absolute poverty', their lives dominated by hunger, ill health, and the absence of hope. So long as their situation does not improve, trends towrd impoverishment of the earth's renewable resource base are likely to worsen, making the plights of the poor even more desperate.

These stresses are not confined solely to developing countries. In recent years, for example, the United States alone has been losing about 3 million acreas of rural land annually. Of this total, some 1 million acres are prime agricultural land. This has been the direct result of:

(1) Housing developments spread.

(2) New highways.

(3) Shopping malls and similar non-agricultural use of former potential and actual agricultural acreage. Due to soil degradation-erosion and salinization, each year we also lose the equivalent in production capability of as much as 1 million acres.

The Global 2000 Report spells out the serious worldwide nature of the degradation and loss of agricultural land - in rich as well as poor countries. In ad dition, pollution of water supplies by toxic chemicals and the physical destruction and pollution of essential habitats for fisheries are also common threats to natural systems throughout the world.

Some ... "recent reports of the multiple, increasing stresses of the earth's resources and the increasingly precarious condition of these changes affect all of humanity. There are hardheaded, selfish reasons as well as ethical ones for people of all nations, rich and poor, to concern themselves with conservation of the earth's resources and protection of the global environment.

Interests of the United States

Why, you may ask,... "should the United States or other comfortable countires, with a seeming wealth of resources at their command, take an urgent interest in global resource improvement and environmental degradation? " The 'short' answer is - enlightened self-interest. Broken down into its component dimensions, this 'translates' into:

(1) the resulting poverty for hundreds of millions of people is a matter of serious moral concern.

(2) there is a profound human interest in protecting the earth's resources for generations to come, and

(3) there are impelling reasons of national self-interest!

U.S. political and economic security, broadly defined, is already being affected by global resource,,environment, and population problems - more so than is commonly understood. Should present trends continue - the effects will become far greater with time.

Specifically, ... "the dimension of U.S. national security related to global resource, population, and environment includes:"

(a) political stability:

"A downward spiral of poverty and resource degradation and a growing disparity between rich and poor could increase the possibilities for frustration and resentment from those on the short end of the wealth equation, making them more suseptible to ecploitation by others and incitement to violence. Such developments can threaten the security of all nations, including our own."

Other significant facts relating directly to U.S. national security include:

(b) the availability and prices of renewable natural resources:

To a most unusual degree, the United States - a highly industrialized nation - provides most of its food, fiber, fish, and forest products. However, we rely on Southeast Asian forests for specialty hardwoods, and we import considerable quantities of meat and produce. However, the real concern is not the possible lose to the U.S. of these specific imports. A general decline in the availability of global resources following continued degradation of the resource base is the real worry.

In common with the rest of the world, We will have to pay soaring food prices if world agricultureal lands and water are lost or degraded and population continues its enormous growth. The same is true for fuelwood, building materials, and paper if rapid loses of world forests continue and for a host of other materials that natural systems provide."

(c) conservation of resource base in U.S.:

"The United States benefits greatly from exports of farm and forest products. Agricultural exports pay for about 60 percent of our oil imports." However, one can reasonably anticipate that if food production capacity declines elsewhere in the world, the pressures will be great to overuse and abuse America's agricultural and other reusable resourcese, For example, the incentives could be very powerful to plow up natural grasslands in the semi-arid Great Plains, deplete the groundwater resource; and degrade the land to

nonproductive, desert-like conditions."

(d) Resource area impoverishment migrations:

A new category must be added to the tides of political and economic refugees of the 20th. century - ecological refugees. "From wornout cropland, barren rangeland, and degraded forestland, migration is rapidly accelerating" in many part of the world. Waves of immigrants are moving both within nations, (tragically, often from impoverished countryside to shanty town in crowded cities) and from one nation to the next, (as from deforested, eroded Haiti to the U.S.). Although political barriers may be erected to contain the migration, they are hard to enforce. The 'drive' to move from environmentally degraded, resource-poor lands is a powerful one.

(e) Disputes over water ans other resources:

With 148 of the world's important riverbasins shared by two or more countries, "The Global 2000 Report' points out the high potential for conflicts over fresh water. "Competing demands for limited supplies or deterioration in water quality could both give rise to conflict." We in the U.S. have not been free of these problems in the past for we have shared with both Canada and Mexico problems of water availability and quality. It is also conceivable that differing (and competing) national demands for resources other than water might also lead to international disputes and tensions.

(f) Energy availability:

"The global scramble for supplies whenever oil production drops in the Middle East", as well as escalating oil prices which currently are ruinously high for poorer countries - indicate the

urgent need to reduce world oil supply and develop more diverse, reliable, and renewable sources of energy.

Energy availability is a dramatically clear example of the existing need for international cooperation. For the U.S., a heavy energy user - "getting more out of each barrel of oil and ton of coal - can be the cheapest and safest available source of the benefits we seek from energy - comfort, mobility, jobs, economic growth; at the sme time it frees more oil for the world market."

In this same frame of reference, the replanting of forests for firewood in many of the poorer countries; the development of other local and renewable energy sourcese; and extensive conservation measures can contribute greatly to economic development while lessening demands on the world oil market, as well as reducing needs for financial aid to buy oil.

(g) Trade:

The U.S. benefits greatly from trade with the developing nations. "More than one third of U.S. exports are now bought by developing countries, and by the end of the century their share will probably be higher." In the U.S. alone, some 80,000 manufacturing jobs depend on exports to developing countries, and well over one-half of our agricultural exports go to them. As nations develop and achieve higher incomes and growing economies, they are likely to be still better trading partners."

(h) Conservation of genetic resources:

"The earth's diversity of plant and animal life is an essential storehouse of genetic material fo meeting human needs." The development of new medicinal drugs and new crop varieties, in particular, depends on genetic materials found in wild species or locally cultivated strains. "Entire natural ecosystems also perform valuable services for mankind, and all humanity will suffer from the massive loss of species expected over the next 20 years if present trends continue."

(i) Climate changes and pollution of the global atmosphere: "The problem of rising CO_2 levels in the world's atmosphere and depletion of ozone in the stratosphere are especially hard to manage because they are truely global in scope and require concerted international action for effective control." ...

"The United States has not been blind to the concerns expressed above. We are strongly committed to trotecting and enhancing environmental quality at home. Internationally, ... we are leaders in support of wise management of resources, control of population growth, and care for the environment. ... Valuable - indeed indispensible - as these efforts are, they are clearly not enough. To respond adequately to the enormous and urgent challenges before us will require an unprecedented degree of global cooperation and committment."

Shaping U.S. Response

"With the release of The Global 2000 Report, President Carter asked for a review of U.S. government programs related to the most serious issues identified in the study and for recommendations for needed change." With the assistance of a score of government agencies, many institutions outside of the government, and hundreds of intensely concerned individuals, such a report was prepared. Its recommendations were presented ... "in the spirit not of a fixed or final program, but as a body of good ideas for the first round of an effective response to the immediately challenging problems before us."

These recommendations include both fresh starts and continuing efforts in the areas identified as needing priority attention. The report ..."stresse that international cooperation is imperative in maintaining a productive and habitable earth."

Those who worked on this report kept in mind several basic guidelines:

(1)The urgent need for Sustainable economic development.

The key concept here is sustainable development. "Economic development, if it is to be successful over the lonf term, must oriceed in a way that protects the natural resourc base of the developing nations." Such development is absolutely necessary to interrupt the cycle of poverty, population growth, and environmental degradation that is putting unsupportable pressures on croplands, pastures, forests, and fisheries in much of the less developed world. It is simply not realistic to expect people living a marginal existence - literally struggling for their day-to-day survival, to think about long-term survival of the planet.

(2) the report concludes: "Only a concerted attack on the socio-economic roots of extreme poverty, one that provides people with the opportunity to earn a decent livlihood in a nondestructive manner, will permit protection of the world's natural systems. Nor will development and economic reforms have lasting success unless they are suffused with the concern for ecological stability and wise management of resources."

Highlights of the report which responded to The Global 2000 Report include:

A- "There are many ways in which the United States, other developed countries, and international organizations can contribute to sustainable economic development in the Third World. One of them is international development assistance and monetary issues, domestic policies, and availability of investment capital from many sources that influence economic growth in developing countries. ... A sustained committment to development assistance by the richer nations, including the oil-rich nations, is critical to breaking this cycle of hunger, misery, and resources degradation in the Third World."

This report specifically recommends a substantially increased committment by the U.S. to development assistance programs. It would single out programs that are strategically well-planned, where the U.S. contribution is meshed with those of other countries and international organizations and where recipient countries both need the assistance and are able to use it effectively. An example is the World Bank's 5-year fuelwood forestry program which would double the present rate of tree planting in low income developing countries.

B - "Direct financial assistance for development projects is just one way to encourage sustainable economic growth. Another is the provision of technical assistance, not only to the neediest countries that are recipients of foreign aid, but also to middle or higher income development countries.

"Many of the recommendations in this report emphasize tapping U.S. scientific and technical know-how, using our experience in inventory and assessment of natural resources, resource management, and institutional-building and training - as well as out scientific research skills. Promising ideas for applied scientific reserach are to be found throughout the report. Energy, tropical forests, biological diversity, and pollution control are particular examples of emphasis on sharing U.S. technical expertise."

C - In the hundreds of letters and comments offered regarding ideas for the United States responding to global resources, environment, and population problems, the most frequent recommendation, by far, was for institutional changes to assure enduring, effective attention to these long-range global issues. This very same concern was vigorously expressed in The Global 2000 Report. The latter .... "documented in detail our government's present inability to anticipate and evaluate global problems. To muster a coordinated response is still more difficult."

D - Among the numerous suggestions for developing institutions and laws that will assure sustained, adequate focus upon global issues, two stand out:

(a) "centralize authority for fostering the development of an integrated U.S. stategy on global resources, environment, and population in one single government institution.

(b) "establish a hybrid public-private institution to supplement the government effort, to stimulate independent analysis, and to involve private groups - industry, labor, environmental, population, academic, and others - in a creative dialogue with the government."

E - Finally - the report concludes that coordinated development of policy is absolutely essential. "All the pieces must be evaluated and brought together in a coherent whole - a job attempted in this report for the first round, but one that must be continued, exapanded, and made a permanent, high priority part of government operations."

In Conclusion:

U.S.Interests -

As detailed thorughout this document... "global population, resource, and environment problems have the potential for serious adverse impacts on the fomestic and international interests of the United States. As a large consumer of world resources and, at the same time, repository of scientific know-how, the United States should act in concert with the other countries to resolve future problems. To do so effectively, the U.S. government must have the capacity to project long-term global problems and to act on them. (underlining added).

U.S. Strategy -

To date, U.S. strategy on long-term global population, resource, and environment problems has been formulated largely on an ad hoc basis. The proposed U.S. strategy is to erect a stronger capability in the federal government to:

1- project and analyze global trends

2- coordinate policymaking on long-term global issues

3- put into place action-forcing mechanisms such as budget review procedures

4- encourgae involvment of the private sector, and

5- increase public awareness."

(Those who wish to be apprised of the specific recommendations contained in the response report to The Global 2000 Report will find these in the APPENDIX to this document).

Boris Blai, Jr. Ed.D.
Psychologist-in-retirement

1981

Enclosure: APPENDIX

APPENDIX

Summary of Recommendationns

"1. Population

Problem: Between now and the year 2000, almost 2 billion more people will be added to the present world population of 4.5 billion. Ninety percent of the growth will occur in low income countries, where populations are predominantly younger and have their childbearing years ahead of them. At the very least, explosive population growth makes the provisions of decent conditions for the world's people more difficult. In some areas, it is already overwhelming efforts to educate, house, and employ the population. And the attempts of growing numbers of people to wrest a living from the land is undermining the very soil, water, and forest resources on which long-term stability and improvements in standards of living depend. Population growth in richer countries, though much slower, is also of concern, because consumption of resources per capita, (especially commercial energy and other renewable resources), is very much higher.

Recommendations: The United States should:

1- Together with other donors and international organizations, launch a program aimed at significantly increasing family planning over the next decade by doubling resources available and improving maternal and child health care.

2- Expand government assistance for research in more effcetive contraception methods suited to the needs of recipient countries.

3- Develop a U.S. national population policy that includes attention to such issues as population stabilization; availability of family planning programs; just, consistent, and workable immegration laws; improved information needs; and institutions to ensure continued attention to domestic population issues.

2. Food and Agriculture

Problem: Population increases will place great stress on world food supply. Although food production may expand 90 percent (under optimistic assumptions) by the year 2000, the increase will be less than 15 percent on a per capita basis. Of particular concern is the ability to improve world agricultural yields in the face of pressures leading to degradation of agricultural soil and water resources and the conversion of some of the best cropland to other uses.

Recommendations: The United States should:

1- Expand significantly U.S. development assistance to the crucial food sector in low income countries.

2- Establish an Interagency Task Force on World Agricultural Lands (on the model of the Interagency Task Force on Tropical Forests), to assess the world agricultural lands and trends affecting their productivity, review current national and international responses, recommend a coordinated U.S. strategy as part of the international efforts to address the problem, and provide the foundation for proposals for an international plan of action.

3- Lead by example in protection and wise management of U.S. agricultural lands; elements in this program should include:

(a) Federal technical and financial assistance to state and local governments wishing to develop land preservation policies and soil and water conservation programs.

(b) An Agricultural Land Conservation Fund to help finance state and local conservation programs.

(c) Financial incentives to help preserve farmlands.

(d) Examination by federal agencies of programs affecting agricultural lands (e.g. federal loan and loan guarantee programs, sewer, water, and highway programs) to ensure theur actions d o not unnecessarily encourage farmland conversion.

(e) Examination and use by state and local governments of growth management tools to discourage farmland conversions.

(f) New incentives to improve soil conservation.

4- Propose an international technical conference on conversion of agricultural lands.

5- Strengthen national and international programs to preserve crop germ plasm.

6- Through assistance, cooperation, and research programs, domestic and international, encourage the use of sustainable agricultural management techniques, including integrated pest management, more efficient use of commercial fertilizer, and biological fixation of nitrogen.

7- work actively toward a better international food reserve system.

3. Renewable Energy Resources and Conservation

Problem: While most of the world, rich and poor, is having to adjust to soaring oil prices, the developing countries without their own oil resources are hardest hit. They are now spending $50 billion per year to buy oil - almost twice the amount they receive collectively from all outside sources for development assistance. At the same time, the world's poorest half, most of whom rely mainly on traditional fuels such as firewood and agricultural waste, face another energy crisis: dwindling supplies of firewood. This combination is aggravating already severe economic and ecological problems and adding to the difficulties of achieving economic growth.

Recommendations: The United States should:

1- Support recent World Bank proposals for a major increase in assistance for fuelwood growing and assistance. As our part of the effort, AID should substantially increase its assistance for fuelwood planting. The program should be designed according to econologically sound principles.

2- Encourage the World Bank tp accelerate lending for renewable energy and conservation activities and support the idea of a new World Bank energy facility.

3- Develop mechanisms for easier access by developing countries to new energy techniques developed by the U.S. government and also, so far as possible, to privately owned technologies.

4- Study ways to make U.S. government technical experts in renewable energy and conservation more readilt available to a broad range of developing countries, including a voluntary program of short-term technical assistance that would tap the abilities of the private sector.

5- Participate actively in the 1981 UN Conference on New and Renewable Sources of Energy.

6- Establish an interagency task force to develop a realistic strategy for achieving the goal of 20 percent of U.S. energy from renewable sources by 2000.

4. Tropical Forests

Problem: The conversion of forested land to agricultural use and the demand for fuelwood and forest products are depleting the world's forests at an alarming rate - as much as 18-20 million hectares annually; an area one-half the size of California. ... Hundreds of millions of people are already directly affected by this extremely serious and growing global environmental problem.

Recommendations: The United States should;

1- Press for adoption by the international community of a global plan of action in tropical deforestation.

2- Provide financial and technical assistance to enable the Food and Agricultural Organization (FAO) of the United Nations to fulfill the international leadership role.

3- Coordinate U.S. programs closely into the FAO and World Bank to optimize use of resources.

4- Designate and support the Forest Services' Institute of Tropical Forestry (Puerto Rico) and Institute of Pacific Islands Forestry (Hawaii) as 'national centers' for tropical forest research, education, and training.

5- Call upon the World Bank to design and support an international cooperative program on reforestation of large watersheds.

6- Expand the tropical forest management capabilities of Agency for International Development (AID) and the Peace Corps.

7- Puruse, through the Interagency Task Force, a new partnership of government and private industry to broaden the base of U.S. planning and to improve U.S. technical sssistance contributions to international programs.

5. Biological Diversity

Problem: The accelerating destruction and pollution of habitat for wild animals and plants threaten extinction of species in the next 20 years on an unprecedented scale. As much as 15-20 percent of all species on earth could be lost in the next 20 years, about one-half because of the loss and degradation of tropical forests and the rest principally in fresh water, coastal, and reef ecosystems.

Recommendations: The United States should:

1- Establish a federal Interagency Task Force on Conservation of Biological Diversity and develop a comprehensive long-term strategy to maintain biological diversity, integrating national and international programs.

2- Examine and select for increased U.S. support existinf international programs to identify priority areas for protection of biological diversity.

3- Consider proposing the establishment of an international fund to help developing countries protect and manage critical ecological reserves and habitat, especially in tropical forests.

4- Increase support of national and international efforts to inventory the world's flora and fauna and to collect species and germ plasm.

5- Increase U.S. assistance for training wildlife management and conservation professionals of developing countries, especially at selected institutions in those countries.

6- Expand our ability to offer U.S. technical expertise in conservation of biological diversity to other countries.

6. Coastal and Marine Resources

Problem: Growing threats to coastal and marine ecosystems comes from urban and industrial development and destruction of productive coastal wetlands, and reefs; poluttnats washed from the land; dumped or discharged into the ocean, or deposit d from the atmosphere; and uncontrolled exploitation of world fisheries. ... A special concern is the lack of data regarding the degree of pollution and disturbance and the longevity of impact in the open oceans.

Recommendations: The United States should:

1- Prepare for a U.S. technical conference to review and improve ecologically sound fisheries management.

2- Expand support of fisheries management in developing countries bilaterally and by means of increased funding to th FAO.

3- Inventory and map coastal resources and assess the inputs and impacts of major pollutants into coastal and marine areas from land-based sources, cooperate with other countries to do likewise.

4- Expand efforts to establish marine sanctuaries and seek international agreement on the protection of habitat of migrating species.

5- Continue to support a moratorium on all commercial whaling until the continued survival of whales can be assyred.

6- Undertake research needed to implement the Antartic Living Resource Treaty; continue efforts to assure that exploitation of Antartic mineral resources will not take place until a decision has been made - on the basis of sufficient information - that such development is acceptable.

7. Water Resources

Problem: Human needs for water will greatly increase over the next 20 years. In one-half the countries of the world, population growth alone will cause demands to double. ... Parts of the world, especially the Third World, are already suffering severe water shortages and drought, and water-borne disease is endemic in many areas.

Recommendations: The United States should:

1- Establish an Interagency Committee on Global Water Supply and Management to assess data and monitoring of world water availability and needs, identify potential areas of conflict over water resources, and propose ways for the United States to cooperate with other nations in this area of sharing expertise and knowledge.

2- Improve U.S. bilateral technical assistance in water resource management and increase financial support to the FAO for training in water management.

3- Increase research efforts to reduce water needs for irrigation.

4- Participate actively in international efforts to assure safe drinking water as a major development goal.

5- Encourage the creation of conflict resolution arrangements to anticipate and help resolve international disputes over water supply or quality.

8. Global Pollution

Problem: The earth's life support systems are threatened by certain by-products of economic development and industrial growth. Contamination from hazardous substances and nuclear waste, man-induced climate modification from the build-up of CO_2, damage to the stratosphere ozone layer, and acid

precipitation could adversely affect virtually every aspect of the earth's ecosystems and resource base and, ultimately, mankind.

Recommendations: The United States should:

1- Work toward imporiving international agreements to control hazardous substances and waste.

2- Improve the U.S. system for notifying recipient countries of the export/hazardous substances that are banned for all or most users in the United States and, inexpectional cases of extremely hazardous banned substances, provide for control over their export.

3- Improve U.S. ability to handle hazardous wastes.

4- Develop procedures for regulating the export of hazardous wastes.

5- Take national and international measures to reduce amounts of nuclear waste and control their disposal and to protect the global commons from radioactive material.

6- Analyze alternative global energy futures with special emphasis on CO_2 build-up and work toward an international consensus on action to reduce CO_2 build-up.

7- Support further research on acid precipitation; continue bilateral work with Canada on transboundary air pollution, and intensify legal efforts to control acid deposition.

8- Support more research on ozone depletion; encourage action by international organizations, and move toward more effective action to protect the stratospheric ozone layer.

9- Improve national and international climate programs.

9. Sustainable Development

Problem: Many of the world's most severe environmental problems are in part a consequence of extreme poverty: deprived people are forced to undermine the productivity of the land on which they live in their necessary quest for food, fuel, and shelter. People who have no other choice for getting their living plant crops on poor, erodible soils, graze their stock on marginal land that turns to desert from overuse, cut trees that are needed to stabilize soils and water supplies, burn dung needed to fertilize and condition agricultural soils.

Recommendations: The United States should:

1- Make up its overdue obligations to the World Bank and other development funds and contribute its share to the World Bank's general capital increase.

2- Provide a major expansion in the U. S. development assistance programs targeted to food, energy, population and health, and coordinate these with programs of other countries and international organizations.

3- Urge the World Bank and other international organizations to integrate resource and environmental considerations more fully into their planning.

4- Increase resource management expertise in AID programs and encourage all U.S. agencies with significant activities abroad to integrate resource and environmental considerations further into their decisionmaking.

5- Develop ways to use the scientific, technical, resource management, and enviornmental expertise of U.S. government agencies more effectively, both in AID programs and in other international cooperation programs.

10. Institutional Changes:

Improving Our National Capacity To Respond

Problem: The U.S. government currently lacks the capacity adequately to project and evaluate future trends; take global population, resource, and

environmental considerations into account in its programs and decision-making; and work with other countries to develop transnational solutions to their problems.

Recommendations: The United States should:

1- Establish a government center as coordinator to insure adequate data collection and modeling capability as the basis for policy analysis on long-term global population, resource, and environmental issues.

2- Improve the quality of data collection, and modeling for global issues and promote wider access to data and models.

3- Establish a Federal Coordinating Unit, preferably in the Executive Office of the President, to develop federal policy and coordinate ongoing federal programs concerning global population, resource, and environmental issues.

4- Adopt action-forcing devices, such as budget review procedures, a Presidential message, creation of a blue-ribbon commission, establishing an office in each federal agency to deal with long-term global issues, or passage of legislation formalizing a mandate to federal agencies to address long-term global issues, and creating a federal coordinating unit and hybrid public-private institute.

5- Create the Global Population, Resource, and Environment Analysis Institute, a hybrid public-private insitution, to strengthen and supplement federal government efforts on long-term global analysis.

6- Improve the budget process to make technical expertise of U.S. agencies more readily available to other countries.

7- Assure environmental review of major U.S. government actions significantly affecting natural or ecological resources of global importance; designate tropical forests, croplands, and coastal wetland estuarine and reef ecosystems as globally important resoureces.

8- Continue to raise global population, resource, and environment issues in appropriate international organizations and other countries in formulating solutions.

9- Enlist the business community in formulating responses to long-term global problems, and

10 - INCREASE PUBLIC AWARENESS OF GLOBAL POPULATION, RESOURCE, AND ENVIRONMENT ISSUES." (Knowledge leads to greater understanding. An aroused, knowledgeable American public will insist that the United States fully assume a leadership role in this effort to help assure a global future - for all !!